To understand this, suppose there is a portfolio of \( n \) different calls on the same underlying stock. The portfolio contains \( n_i \) units of the \( i \)th call, which has value \( C_i \) and delta \( \Delta_i \). Let \( \omega_i = n_i C_i / \sum_{j=1}^{n} n_j C_j \) be the fraction of the portfolio invested in the \( i \)th call. The portfolio value is then \( \sum_{i=1}^{n} n_i C_i \). For a $1 change in the stock price, the change in the portfolio value is the sum of the deltas

\[
\sum_{i=1}^{n} n_i \Delta_i
\]  

(13)

The elasticity of the portfolio is the percentage change in the portfolio divided by the percentage change in the stock, or

\[
\Omega_{\text{portfolio}} = \frac{\sum_{i=1}^{n} n_i \Delta_i}{\sum_{i=1}^{n} n_i C_i} = \sum_{i=1}^{n} \left( \frac{n_i C_i}{\sum_{j=1}^{n} n_j C_j} \right) \frac{S \Delta_i}{C_i} = \sum_{i=1}^{n} \omega_i \Omega_i
\]  

(14)

Using equation (14), the risk premium of the portfolio, \( \gamma - r \), is just the portfolio elasticity times the risk premium on the stock, \( \alpha - r \):

\[
\gamma - r = \Omega_{\text{portfolio}} (\alpha - r)
\]  

(15)